

**COMPLETE LISTING OF CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-14 (canceled)

Claim 15 (original) A method for assembling sequence reads, comprising the steps of:

- a) categorizing a plurality of sequence reads into at least two sub-groups of sequence reads based on a identifiable characteristic of the sequence reads in each sub-group;
- b) matching sequences reads within each sub-group thereby creating assemblies of said sequence reads within each respective sub-group; and
- c) repeating steps a) and b) with all unassembled sequence reads and newly created assemblies.

Claim 16 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar sizes.

Claim 17 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar entropies.

Claim 18 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar GC percentages.

Claim 19 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar longest repeats.

Claim 20 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar natures of regions of high entropy.

Claim 21 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar natures of regions of low entropy.

Claim 22 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having similar compression ratios.

Claim 23 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having compression ratios after sequence appending.

Claim 24 (original) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having two or more similar characteristics.

Claim 25 (currently amended) A method as set forth in claim 15, wherein said categorizing step includes identifying sequence reads having at least one of the following similar identifiable characteristics: sizes, entropies, GC percentages, longest repeats, natures of regions of high entropy, natures of regions of low entropy, and compression ratios.

Claim 26 (new) A method as set forth in claim 25, further comprising step d) repeating steps a) and b) with an identifiable characteristic different from the identifiable characteristic used in step c).